

can be secured to the arm or stowed in a pocket on the arm when not in use.

(h) *Retroreflective material.* Each thermal protective aid must be fitted with at least 200 cm<sup>2</sup> (31 sq. in.) of Type I retroreflective material that meets subpart 164.018 of this chapter.

(i) *Size.* Each thermal protective aid must fit persons ranging in weight from 50 kg. (110 lbs.) to 150 kg. (330 lbs.) and in height from 1.5 m. (59 in.) to 1.9 m. (75 in.).

(j) *Lifejacket.* Each thermal protective aid must be designed so that any Type I Personal Flotation Device meeting the requirements of this chapter can be worn inside the aid and, when worn, will not damage the aid and will not adversely affect its performance.

#### § 160.174-11 Performance.

(a) *Thermal protection.* The thermal protective aid must be designed to protect against loss of body heat as follows:

(1) The thermal conductivity of the material from which the thermal protective aid is constructed must be not more than 0.25 W/(m-°K).

(2) The thermal protective aid must prevent evaporative heat loss.

(3) The aid must function properly at an air temperature of -30 °C (-22 °F) to +20 °C (68 °F).

(b) *Donning Time.* Each thermal protective aid must be designed to enable a person to don the aid correctly within one minute after reading the donning and use instructions described in § 160.174-15(a).

(c) *Storage Temperature.* A thermal protective aid must not be damaged by storage in its storage case at any temperature between -30 °C (-22 °F) and +65 °C (149 °F).

(d) *In water performance.* The thermal protective aid must be designed to permit the wearer to remove it in the water within two minutes, if it impairs ability to swim.

(e) *Water penetration.* The fabric from which the thermal protective aid is constructed must maintain its watertight integrity when supporting a column of water 2 meters high.

(f) *Oil resistance.* Each thermal protective aid must be designed to be use-

able after 24 hours exposure to diesel oil.

#### § 160.174-13 Storage case.

Each thermal protective aid must be provided with a ziplock bag or equivalent storage case.

#### § 160.174-15 Instructions.

(a) Each thermal protective aid must have instructions for its donning and use in an emergency. The instructions must be in English and must not exceed 50 words. Illustrations must be used in addition to the words. The instructions must include advice as to whether to swim in the aid or discard it if the wearer is thrown into the water.

(b) The instructions required by paragraph (a) of this section must be on the exterior of the storage case, printed on a waterproof card attached to the storage case, or printed on the thermal protective aid and visible through a transparent storage case. The instructions must also be available in 8½×11 inch loose-leaf format for inclusion in the vessel's training manual.

#### § 160.174-17 Approval testing.

(a) *General.* A thermal protective aid must be tested as prescribed in this section.

(b) *Mobility and swimming tests.* The mobility and swimming capabilities of each thermal protective aid must be tested under the following conditions and procedures:

(1) *Test subjects.* Seven males and three females must be used in the tests described in this paragraph. The subjects must represent each of the three physical types (ectomorphic, endomorphic, and mesomorphic). Each subject must be in good health. The heaviest male subject must weigh at least 25 kg (55 lb) more than the lightest male subject. The heaviest female subject must weigh at least 25 kg (55 lb) more than the lightest female subject. The heaviest subject must weigh 150±5 Kg (330±11 lbs.) and the lightest subject must weigh 50±5 Kg (110±11 lbs.). Each subject must be unfamiliar with the specific thermal protective aid under test. Each subject must wear a standard range of clothing consisting of: